



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,527	03/09/2004	Takao Mori	112857-478	1944

7590 01/04/2007
BELL, BOYD & LLOYD LLC
P.O. Box 1135
Chicago, IL 60690-1135

EXAMINER

BERNARD, VIJI

ART UNIT	PAPER NUMBER
----------	--------------

1763

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/796,527

Applicant(s)

MORI ET AL.

Examiner

Viji N. Bernard

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/153,453.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 07/04, 03/05.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 recites the limitation the third alignment mechanism. There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitation the support members. There are three different support members and which one(s) are being referred to is unclear. So there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 10-214682 to Tanamura et al.

Regarding Claim 11, Referring to Drawing (4) Tanamura et al teaches manufacturing an organic electroluminescence display, the organic electroluminescence display having a

Art Unit: 1763

substrate (1), a first electrode layer (2, anode layer) formed on the substrate (1) in a predetermined pattern, an organic layer including a plurality of organic material layers (3a-c) (Page 4, Paragraph 0023) stacked on the first electrode layer in a predetermined pattern and a second electrode layer (4, cathode layer) formed on the organic layer (3c), the apparatus comprising:

an alignment mechanism (In the transfer chamber, Tanamura et al discloses a procedurel mechanism for aligning/installing the mask and the substrate, Page 9, Paragraph 0071) for aligning a mask, having openings corresponding to the predetermined pattern, to the substrate (1) on which the first electrode layer (2, anode layer) is formed and for detachably attaching the mask and the substrate;

a plurality of vacuum processing chambers (Drawing 1) (22-26) for sequentially forming a plurality of the organic material layers on the substrate(1), the substrate being attached to the mask; and

a transferring mechanism (22b-26b) (Robot) (Drawing 1) for transferring the attached mask and substrate to one of the plurality of vacuum processing chambers to sequentially transfer the attached mask and substrate among the plurality of the vacuum processing chambers.

Regarding Claim 12, which is drawn to an intended use of the apparatus, the courts have ruled A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)

Art Unit: 1763

Regarding Claim 13, Referring to (Drawing 1) Tanamura et al teaches each of the plurality of vacuum processing chambers (22-26) includes a vapor deposition source for supplying an organic material for forming an organic material layer Drawing (4) (3a-c) (Page 4, Paragraph 0028 and 0040).

Regarding Claim 14, Referring to (Drawing 1) Tanamura et al teaches a vacuum transfer chamber (22a-26a) connecting the vacuum processing chambers (22-26), wherein the transferring mechanism (22b-26b) (Robot) is arranged in the vacuum transfer chamber.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 15, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanamura et al in view of U.S Pub. No: 2001/0006827 A1 to Yamazaki et al .

Regarding Claims 15-16, Tanamura et al teaches the substrate is installed on the metal mask but does not expressly teach an attachment fixture includes a magnet plate for attaching the substrate and the mask and the mask is formed of a magnetic material.

However, Yamazaki et al teaches an electromagnet (210) (Fig 2B) is disposed over the substrate and the substrate is set in a substrate holder (204) and shadow mask (208) is made of metallic material and is fixed to a mask holder (207) (Page 2, Paragraph 0034).

Thus, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the apparatus of Tanamura et al so as to include an electromagnet as taught by Yamazaki et al so that a magnetic field is formed by the electromagnet, the shadow mask is drawn to the substrate so as to maintain a predetermined gap (page 2, Paragraph 0034).

Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanamura et al in view of Yamazaki et al and U.S Patent. No: 5,310,410 to Begin et al.

Regarding Claims 17, Tanamura teaches first electrode layer (anode layer), second electrode layer (cathode layer) and plurality of organic layers and the substrate is installed on the metal mask but does not expressly teach using a single mask in a plurality of chambers to deposit different layers, wherein the electromagnet is switched off and the substrate holder and mask holder are shifted between layers.

However Yamazaki et al teaches shifting the substrate holder and mask holder by using alignment mechanism before transfer into process chamber by switching off the electromagnet ,

Art Unit: 1763

the mask holder is dropped down, and the distance between the shadow mask and the substrate increases. The substrate holder is then shifted over by one pixel portion, the mask holder is raised again, and the shadow mask and the substrate are made to come closer and the mask is moved by one pixel portion whenever the organic EL material for film formation is switched (Fig 2A, 2B) (Page 3, Paragraph 0038 and Page 4, Paragraph 0049)

Thus, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the apparatus of Tanamura et al so as to include electromagnet (210 fixture), substrate holder (203) and mask holder (207) in the transfer chambers of Tanamura et al where the substrate and mask are installed as taught by Yamazaki et al so that different layers are deposited using the same mask.

Tanamura et al and Yamazaki et al teaches the invention as disclosed and as described above but they did not teach a first and second plurality of vacuum chambers sequentially forming the organic layers on the substrate attached with the mask

Begin et al, teaches plurality of first chambers (38, 40, 42) (Fig 3) and plurality of second chambers (80, 82, 84) are disposed in a satellite relationship around the central chambers (14, 72) for the purpose of performing multiple manufacturing processes in a single flexible apparatus (abstract) (Col 2, Line 6-7).

Thus, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the apparatus of Yamazaki et al so as to include plurality of first and second vacuum chambers around the central chambers as taught by Begin et al in order to performing multiple manufacturing processes in a single flexible apparatus.

Regarding Claim 18, the alignment mechanism provided in Yamazaki et al as described above can be used as alignment or separating mechanism. Also, it can be placed in any transfer chamber including a transfer chamber connected to a vacuum processing chamber for depositing an anode or cathode.

Yamazaki et al and Tanamura et al teaches providing a vacuum chamber connected to a transfer chamber for depositing anode and cathode layer, Yamazaki teaches without a mask (Page 4, Paragraph 0051).

Regarding Claim 19, Tanamura teaches the substrate is installed on the metal mask arranged beforehand but does not expressly teach the details of alignment mechanism.

However, Yamazaki et al teaches an electromagnetic alignment mechanism comprises a mask support member (207) (Fig 2A, 2B), a substrate support member (204), an attachment fixture support member (electromagnetic field) and a movement mechanism (205a - conveyor rail) for the purpose of aligning a substrate and mask without warping (Page 2,3, Paragraph 0035).

Thus, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the apparatus of Tanamura et al so as to include an electromagnet, a substrate holder and a mask holder, an electromagnetic field and a conveyor rail as taught by Yamazaki et al in order to prevent the substrate from warping when held by the alignment mechanism.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No: 6,132,280, U.S. Patent No: 6,776,880 B1 and U.S. Pub No: 2005/0005850 A1 discloses multiple chambers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Viji N. Bernard whose telephone number is 571-272-6425. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Viji Bernard
Examiner
Art Unit 1763


Parviz Hassanzadeh
Supervisory Patent Examiner
Art Unit 1763